Plant-Pathology Circular No. 164
March 1976

Fla. Dept. Agr. & Consumer Serv.
Division of Plant Industry

CALADIUM ROOT ROT CAUSED BY PYTHIUM MYRIOTYLUM

W. H. Ridings and R. D. Hartman[1]

Caladiums (Caladium hortulanum Birdsey), well known for their attractive multi-colored foliage, are primarily used for indoor pot plants and home landscaping (8). Native to the Amazon Basin, caladiums are a 2-million-dollar industry in Florida, which produces approximately 95% of the world's commercial crop (3,8). There are over 2000 named varieties with approximately 50 varieties produced commercially (8).

Several fungi (i.e., Sclerotium rolfsii Sacc., Rhizoctonia solani Kuehn, and Pythium spp.), either together or separately, have been associated with root rot of caladium (1). Recently, Pythium myriotylum Drechs. was shown to cause severe root rot of the caladium cultivar Candidum and proved to be the most aggressive species of Pythium tested (7),

SYMPTOMS. P. myriotylum apparently infects only the roots of caladium resulting in reddish brown lesions, root rot, and severe root loss (fig. 1A, B). With the cultivar Candidum corm piece germination is slowed in infested soil, and plant development is restricted with as great as a 41% loss in corm weight (7).

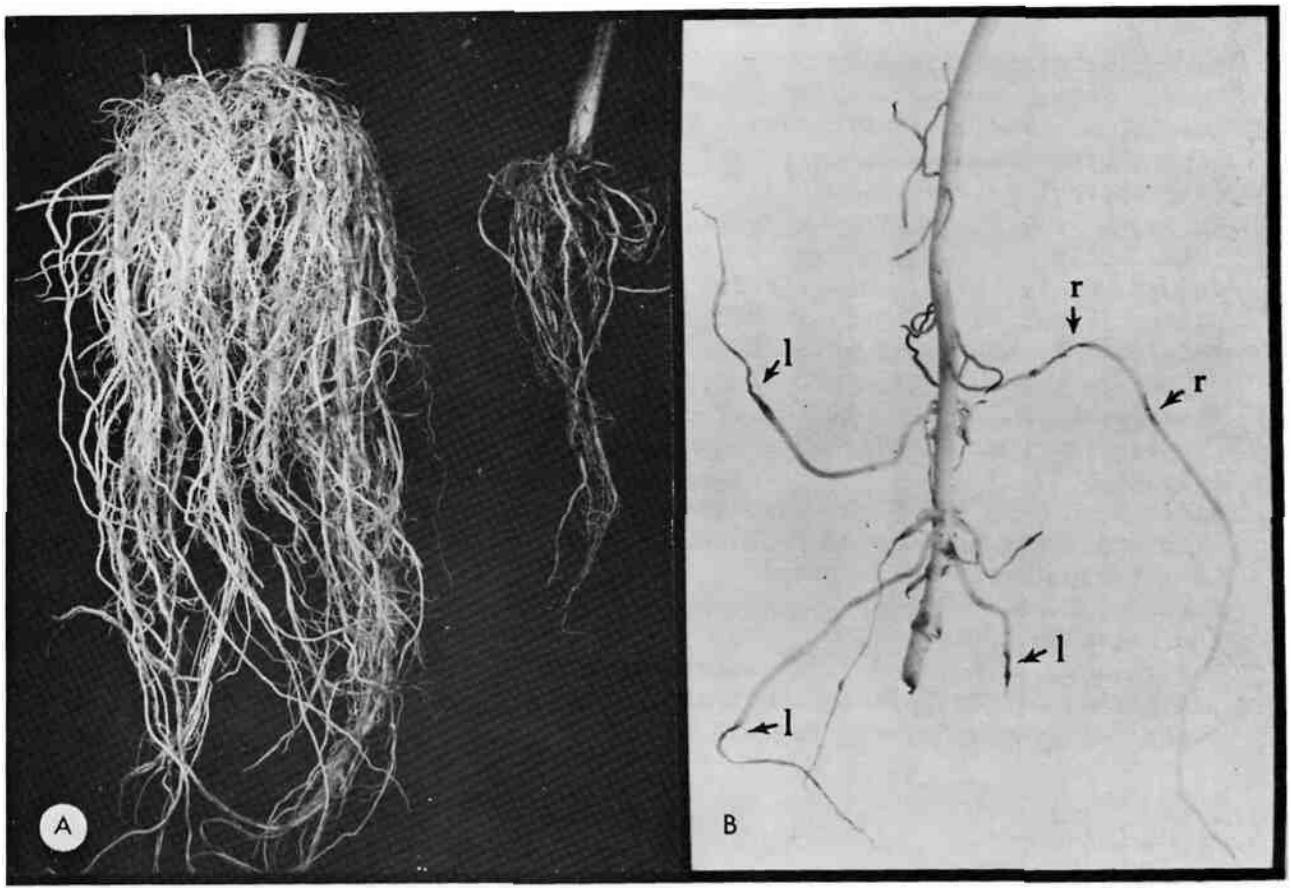

Fig. 1. Caladium roots infected with P. myriotylum. A) Healthy roots (left) and diseased roots (right). B) Diseased roots showing reddish brown lesions (l) and root rot (r).

[1]Plant Pathologist, Pan-American Plant Co., P.O. Box 428, West Chicago, IL 60185.

Contribution No. 414, Bureau of Plant Pathology, P.O. Box 1269, **Gainesville**, FL 32602.

Disease Development. Besides being present in soil, P. myriotylum has been detected in decayed roots attached to non-hot water treated corms being used for planting (1). A soil temperature of 32 C (90 F) and high soil moisture favor the development of this fungus significantly over a soil temperature of 24 C (75 F) and high moisture (7) . Although not tested on caladium, P. myriotylum has been shown to act synergistically with other soil-borne pathogens (2).

Host Range. Other than caladium, P. myriotylum is known to attack a wide variety of crops including tomato, cucumber, bean, tobacco, watermelon, eggplant, papaya, peanut, rye, and other grasses (5,9).

CONTROL. The general procedures outlined for control of other soil pests will serve to control P. myriotylum. These procedures consist of 1) selection of a well-drained planting site, 2) fumigation of soil with a general fumigant such as methyl bromide, 3) hot water treatment of corms before planting (4,6), and 4) prevention of the introduction of contaminated soil into the planting site either from equipment or flooding rains. If P. myriotylum is detected despite the above precautions, then a soil drench with a fungicide such as Truban 30 WP may be helpful for control. Varieties resistant to root rot have not been researched.

References Cited

1. Bureau of Plant Pathology (Plant Disease Records), Fla. Dept. Agr. and Consumer Serv., Div. Plant Ind., Gainesville. (Unpublished)
2. Garcia, R., and D. J. Mitchell. 1975. Synergistic interaction of P. myriotylum with Fusarium solani, and Meloidogyne arenaria in pod rot of peanut. Phytopathology 65:832-833.
3. Holms, L. L., J. Hendry, L. Tubbs, A. L. Hall, and D. Pittman. 1965. Caladium bulbs. Highlands County DARE Rept. for 1965-1975. 11 p.
4. Knauss, J. F. 1975. Description and control of Fusarium tuber rot of caladium. Plant Dis. Reptr. 59:975-979.
5. McCarter, S. M., and R. H. Littrell. 1968. Pathogenicity of Pythium myriotylum to several grass and vegetable crops. Plant Dis. Reptr. 52:179-183.
6. Rhoades, H. L. 1964. Effect of hot water treatment of seed tubers and soil fumigation for control of root knot on yield of caladiums. Plant Dis. Reptr. 48:568-571.
7. Ridings, W. H., and R. D. Hartman. 1976. Pathogenicity of Pythium myriotylum and other species of Pythium to caladium derived from sboot-tip culture Phytopathology 66: (In press).
8. Sheehan, T. J. 1967. Caladium production in Florida. Univ. Fla., IFAS, Gainesville. Circ. 128B. 7 p.
9. Waterhouse, G. M., and J. M. Waterston. 1966. Pythium myriotylum. CMI Descriptions of Pathogenic Fungi and Bacteria 278. Commonwealth Mycological Institute, Kew, Surrey, England. 2 p.